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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/083,282	02/26/2002	Christopher Jones	1391-27800	4125
23505	7590	12/03/2003	EXAMINER	
CONLEY ROSE, P.C.			GABOR, OTILIA	
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HOUSTON, TX 77253-3267			ART UNIT	PAPER NUMBER
			2878	

DATE MAILED: 12/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/083,282

Applicant(s)

JONES ET AL.

Examiner

Otília Gabor

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 September 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-57 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 36-57 is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-893)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 8, 9, 10, 11
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Response to Amendment

1. The amendments filed 09/26/2003 have been entered.

Specification

2. The disclosure is objected to because of the following informalities: on page 11, lines 18-26 the disclosure is referring to the detectors 52, 54 as being positioned around the sample cell 14 and detectors 42 and 44 as being positioned around reference cell 12, which references do not correspond to the references used in the drawing (in the drawing, detectors 52, 54 are at the inlet and outlet of reference cell 12 and detectors 42, 44 at the inlet and outlet of sample cell 14).

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-16, 33, 34 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The newly added limitation to independent claim 1 requires that the microprocessor calculate a parameter from the first and second signals received from

the first and second detectors where the parameter comprises enrichment or depletion of the isotope (underline added for emphasis). However, nowhere in the description of the present invention is the step of calculating the parameter such as the enrichment or depletion of the isotope from the two detector signals disclosed. The only time the enrichment or depletion of the isotope is mentioned is in regards to what having a reference cell will allow someone to do (see page 9, lines 13-15). There is nothing in the description connecting the detection of the signals as disclosed and calculating this parameter. The specification allows for measurements of light absorbed in the reference and sample cells and based on this ratio the calculation of the isotopic composition of the sample. And, as maintained by the Applicant in his remarks filed 09/26/2003, one skilled in the art would know that measuring isotopic ratios is different than measuring isotopic enrichment or depletion, and thus unless there are specific steps to convey how the calculation of these parameters is done, one of ordinary skill in the art would not be enabled to do so based on the present disclosure.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 17-28, 32, 35 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Cooper et al. (U. S. Patent 5317156).

Cooper et al. discloses an apparatus and method for determining the concentration of carbon isotope present in a sample, the apparatus comprises:

- a laser source 15 which is a tunable laser diode, for emitting at least one laser beam onto
- a sample cell 12S containing a sample with an unknown concentration of the carbon isotope and onto
- a reference cell 12R containing a known sample having a known concentration of the target substance
- a detector 20S for detecting the radiation that passed through the sample cell 12S and providing a first signal indicative of the intensity of radiation after being passed through the sample cell; the signal is indicative of how much is being absorbed by the sample, which also is indicative of the sample's transmittance
- a detector 20R for detecting the radiation that passed through the reference cell 12R and providing a second signal indicative of the intensity of radiation after being passed through the reference sample; the signal is indicative of how much is being absorbed by the composition which is also indicative of the composition's transmittance
- a microprocessor 95 for receiving the first signal from the sample detector 20S and the second signal from the reference detector 20R through the processing electronics, and calculating the ratio of the signals in order to

determine the concentration ratio of the sample and the reference from which the concentration of the carbon isotope in the sample is calculated.

In one embodiment, there is one laser beam generated and split so that a portion of it reaches the sample cell and another the reference cell (see Fig.3A), and in another embodiment two separate laser beams are used so that one beam reaches the sample cell and another the reference cell (see Fig.2). The sample used can contain methane (thus a hydrocarbon) (see Col.9, line 57). The temperature of the sample and the reference was controlled and kept constant (see Fig.4B). Having used two different wavelength beams through both cells, the carbon isotopic composition of individual compounds in the sample gas mixture is calculated (i.e., the concentration of $^{13}\text{CO}_2$ relative to $^{12}\text{CO}_2$ is calculated in a mixture of gas from the breath or from methane).

Regarding claim 17, Cooper et al. in Col.8, lines 30-60, discloses calibrating the sample and reference cells relative to the pressure of the gas in the cell and thus the pressure (one parameter) in the reference cell is normalized.

Regarding claim 35, Cooper et al. discloses in Col.8, lines 41-61 steps to normalize the ratio between the response of the reference cell and the sample cell to different pressures, and thus the response of the sample cell and the reference cell to the pressure is normalized one against the other.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper et al.

Regarding claims 30 Cooper fails to limit as to where this system can be used and since measurements of carbon concentration in hydrocarbons is very important in the field of logging and drilling, and since it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed structural limitations, it would have been obvious to one of ordinary skill in the art to use the system of Cooper in a wellbore of a logging tool, where both or only one cell is included in the wellbore, as claimed. *Ex parte Masham*, 2 USPQ 2d 1647 (CCPA 1987).

Regarding claims 31 Cooper fails to disclose two extra detectors, (a first

upstream and a second upstream) to detect radiation before the light enters the sample and reference cells, and where the processor enters the signals so detected into the calculation process of the carbon concentration, however since Cooper et al. utilizes a laser stabilization feedback control circuit to offset the concentration by the error introduced into the measurement due to the laser light, one of ordinary skill in the art would have been motivated to use the extra detectors as claimed since they provide the same function as the stabilizer circuit of Cooper et al. and because it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 549 F.2d 833, 193 USPQ 8 (7th Cir. 1979). Claims 5, 6, 21, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper et al. and further in view of Lee et al. (U. S. Patent 5445964).

Allowable Subject Matter

10. Claims 36-57 are allowed.

11. The following is a statement of reasons for the indication of allowable subject matter: Regarding claim 36 there is no evidence in the prior art searched of a tool for determining the amount of carbon isotope in a fluid with the specifics as claimed, especially that it comprises a pre-dilution cell where the radiation passing through a pre-dilution cell is detected by a third detector and the signal is used to determine the degree to dilute the fluid by a diluent. Regarding claim 49 there is no evidence in the prior art searched of a tool for determining the amount of carbon isotope in a fluid with the specifics as claimed, especially that both the reference and sample cells have a

detector at their inlet as well as at their outlet in order to measure the intensity of radiation before and after it passes the cells.

Claims 37-48 are dependent from claim 36.

Claims 50-57 are dependent from claim 49.

Response to Arguments

12. Applicant's arguments with respect to claims 1-16, 33, 34 have been considered but are moot in view of the new ground(s) of rejection.

13. Applicant's arguments filed 09/26/2003 regarding claims 17-28, 32, 35 have been fully considered but they are not persuasive. See rejection above.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Otilia Gabor whose telephone number is 703-305-0384. The examiner can normally be reached on Monday-Friday between 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on 703-308-4852. The fax phone number for the organization where this application or proceeding is assigned is 703-308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.


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